398

THE IMPACT OF CONTINUOUS SUBCUTANEOUS INSULIN INFUSION (CSII) ON GLYCAEMIC CONTROL: A REGIONAL REVIEW USING MIXED-EFFECTS MODELLING OF 199 PATIENTS

A. Sinha[1,2], M. Thomas[3], S. Rushden[3], T. Cheetham[1,2]

[1]Paediatric Endocrinology, Newcastle Upon Tyne Hospital NHS Foundation Trust, [2]Institute of Human Genetics, [3]School of Biology, Newcastle University, Newcastle Upon Tyne, UK

Background: The number of children with Type 1 Diabetes Mellitus (TIDM) managed with CSII is increasing. Meta-analyses indicate that CSII leads to improved glycaemic control but most studies have included adults and are of short duration. We set out to establish the impact of CSII on HbA1c levels in young people in North-East England over a period longer than 12 months.

Methods: Data was collected retrospectively from 7 centres. HbA1c levels were obtained for the 12 month period prior to CSII initiation and for a median of 28 months afterwards (range 12-52 months). Linear mixed effects modelling was used to assess the impact of CSII therapy, taking into account inter-individual and inter-centre variations.

Results: Data from 199 patients was included (median age 12y, 56%males). There was a significant improvement in control on CSII with an initial HbA1c reduction of 0.040% per month (95% CI 0.015 to 0.064, p=0.0015). However, this effect wore off with time and HbA1c levels returned to pre-treatment values by 48 months. Age at CSII commencement and sex were not significant predictors of future HbA1c. There were significant differences between centres.

Conclusions: Our findings suggest that CSII is associated with an initial improvement in HbA1c that wanes with time. One possible explanation is the 'Hawthorne' phenomenon which links improvements in an observation to initiation of a new therapy rather than the therapy itself. Further investigations are needed to elucidate the factors that can predict sustained differences in outcomes between patients and between centres using this treatment modality.